

2-2021

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Christopher Harnish, MArch, Zayithwa Fabiano, MBBS, Luis
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Disclosures & Acknowledgments

- New York Academy of Medicine
- Alpha Omega Alpha

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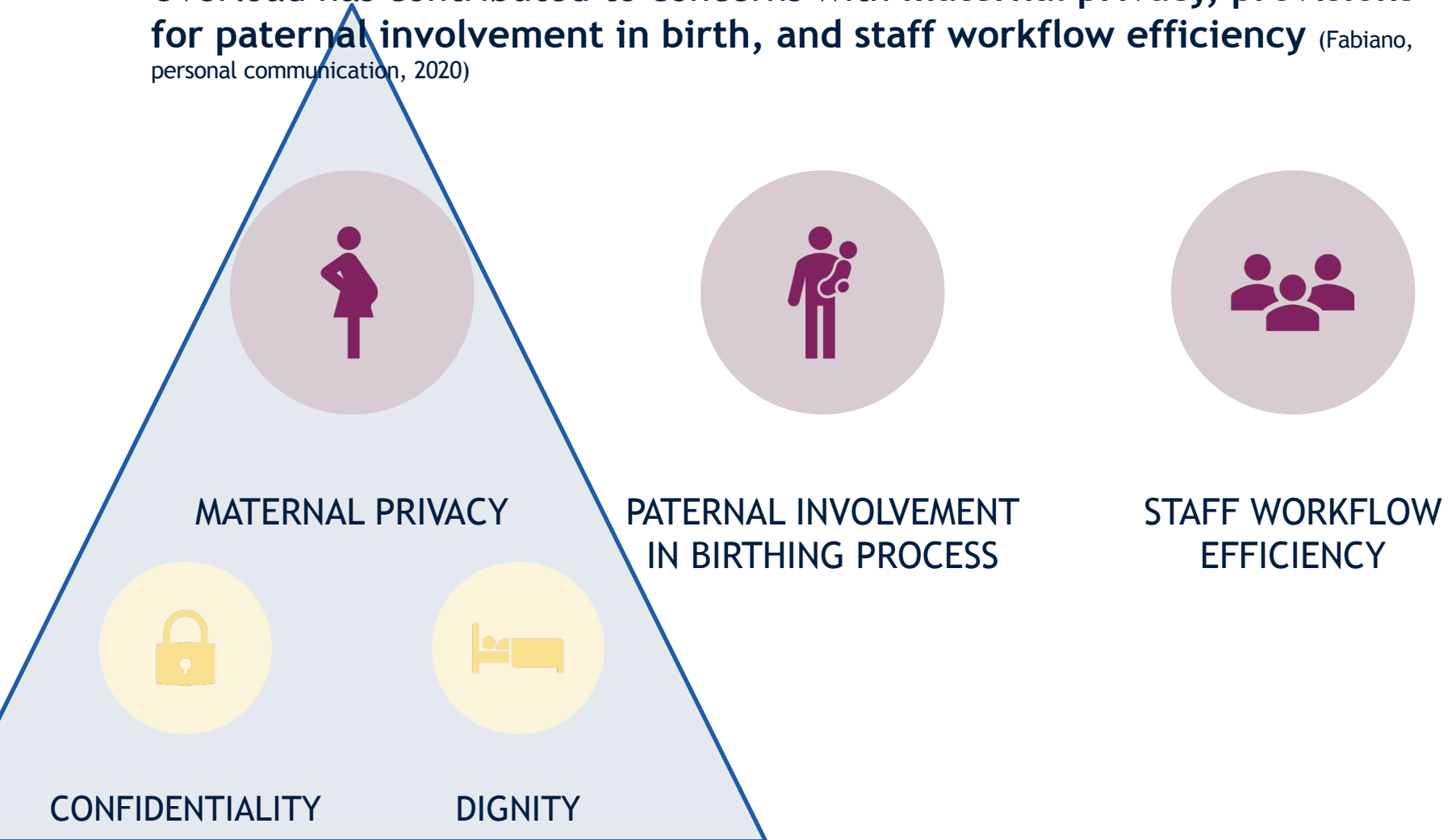
Introduction

- Malawian public health centers constructed to serve 10,000 low-income residents now serve up to 237,000 residents → overwhelmed system (Makwero, 2018)
- Malawian healthcare professionals expressed concern regarding the patient load and current architecture (**open ward setting**)
 - Related literature is inadequate and outdated, many biased with Western norms/interpretation
- Needs assessment required to identify study objectives



Needs Assessment

- Overload has contributed to concerns with **maternal privacy, provisions for paternal involvement in birth, and staff workflow efficiency** (Fabiano, personal communication, 2020)

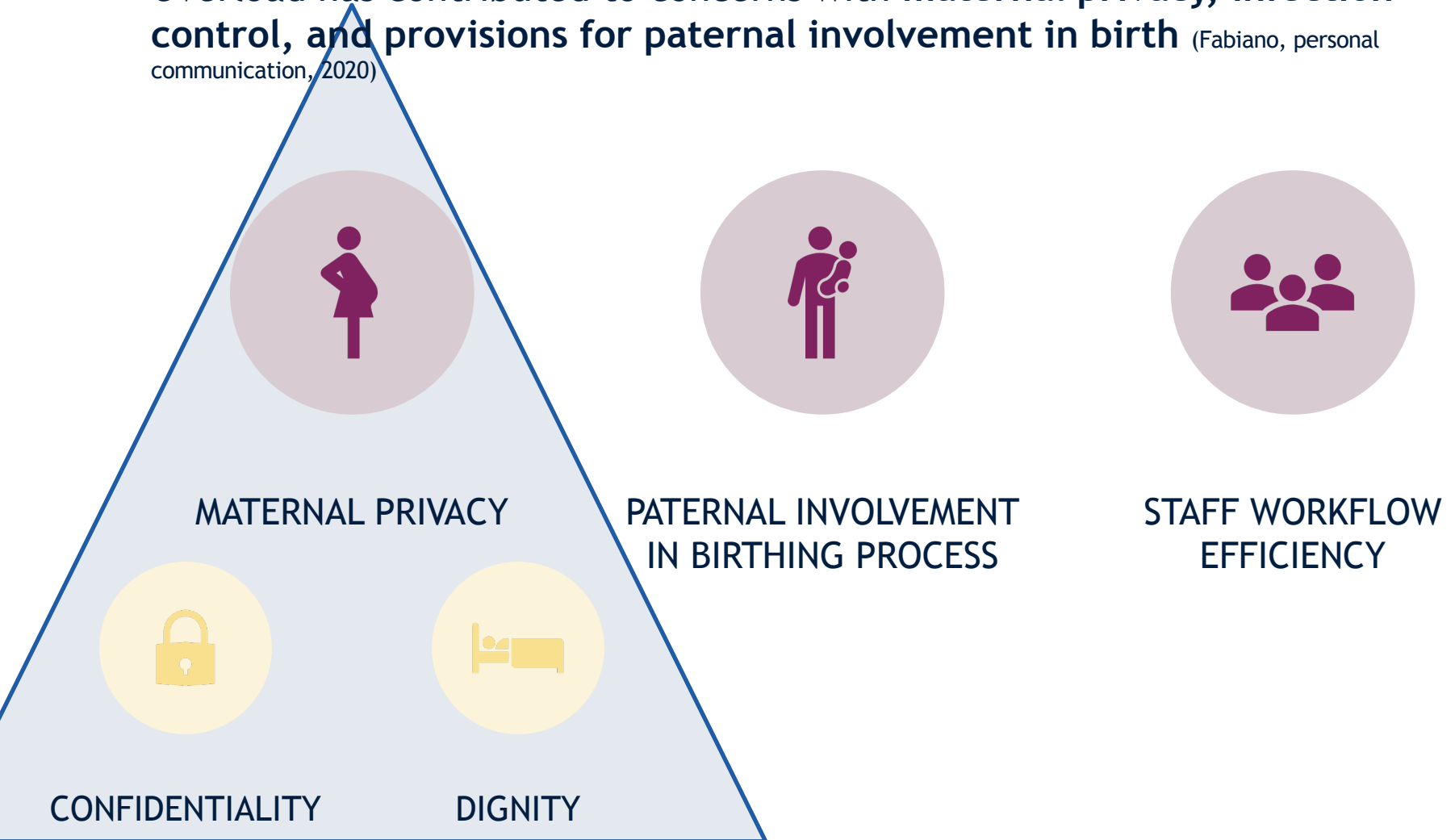


Needs Assessment: **Maternal Privacy**

- Stillbirth and other complications in shared rooms → concerns with **confidentiality & dignity** (Chigwenembe, 2011; Matiti & Sharman, 1999)
- Understaffed/overcrowded maternity wards in Malawian tertiary care facilities → risk of **nosocomial infection** → 3rd most common cause of maternal/neonatal mortality in **Malawi** (Cohen et al., 2017; Coulborn et al., 2012; Geubbels, 2006; U.S. Agency for International Development, 2019)
 - Maternal mortality: 439 per 100,000 live births
 - Neonatal mortality: 29 per 1,000 live births
- **Guardians:** female family members who volunteer to travel to hospital with pregnant mothers and care for older siblings, cook, serve meals, wash linen etc. → increased traffic in maternity ward → **nosocomial infection** (Sarelin, 2014)

Needs Assessment

- Overload has contributed to concerns with **maternal privacy, infection control, and provisions for paternal involvement in birth** (Fabiano, personal communication, 2020)

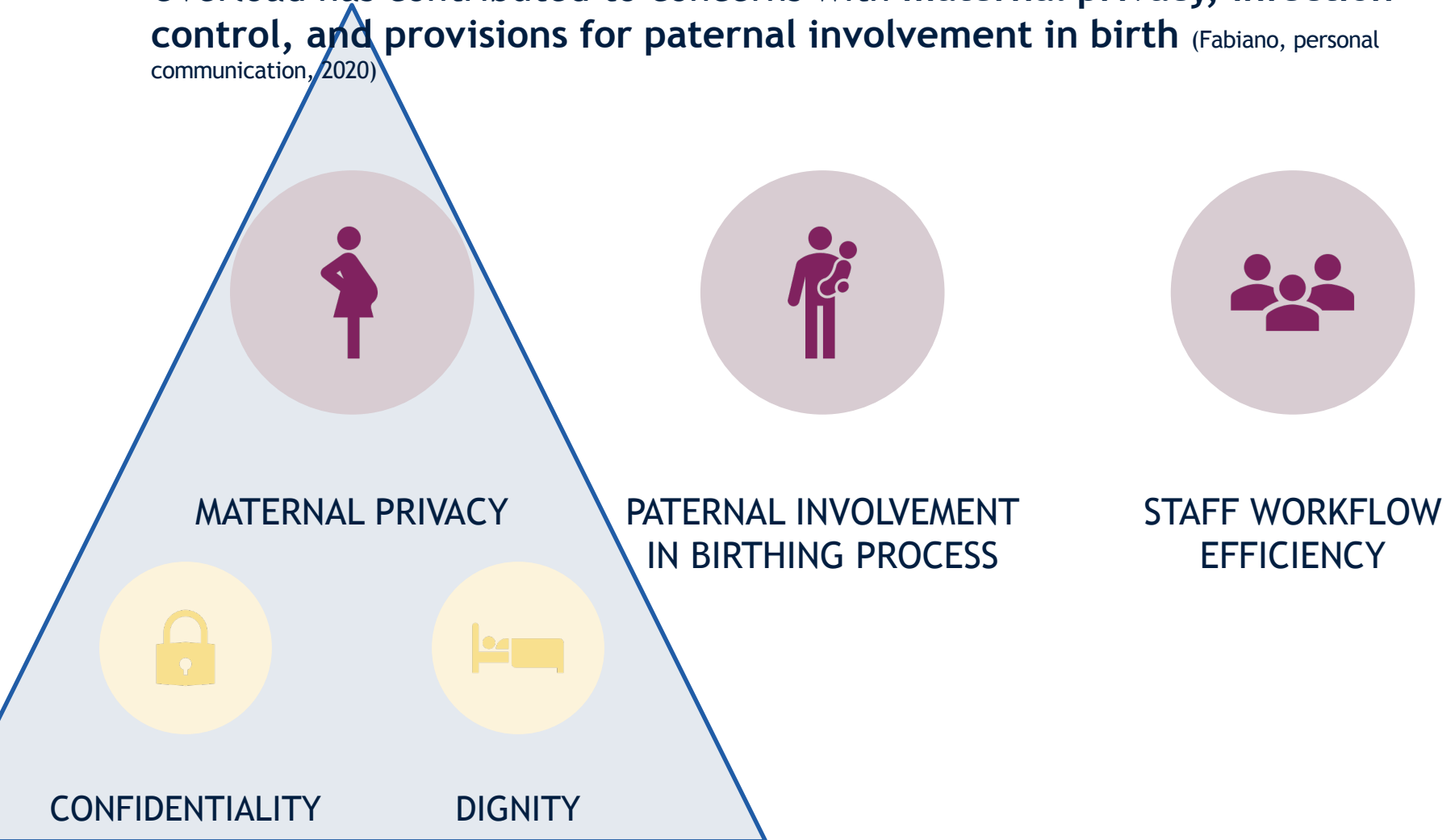


Needs Assessment: **Paternal Involvement**

- **Paternal involvement** in birthing process at QECH is less common than health professionals would like (Fabiano, personal communication, 2020)
 - Reservations and limitations due to cultural and socioeconomic factors
- **Paternal involvement** is positive predictor of breastfeeding, maintenance of healthy pregnancy habits, & maternal well-being 3 months postpartum (Cunningham et al., 2010; Redshaw & Henderson, 2013; Teitler, 2001)

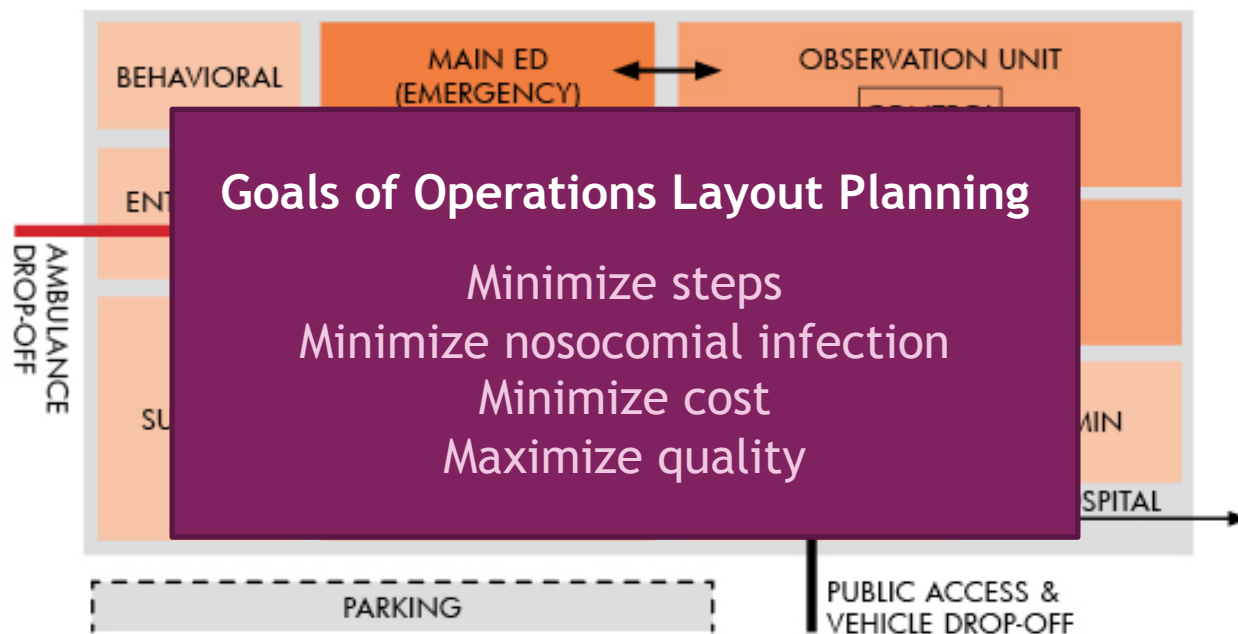
Needs Assessment

- Overload has contributed to concerns with **maternal privacy, infection control, and provisions for paternal involvement in birth** (Fabiano, personal communication, 2020)



Needs Assessment: Staff Workflow Efficiency

- Staff currently required to walk from opposite ends of buildings to transport patients and communicate with other staff → **less staff workflow efficiency**
 - Lack of preset path for daily tasks



Objectives



Determine current state of **maternal privacy** (confidentiality, dignity), **paternal involvement in birthing process**, and **staff workflow efficiency** at Queen Elizabeth Central Hospital (QECH).



Develop a sustainable labor and delivery suite architectural design informed by the results of Objective #1.



Assess the state of factors listed in Objective #1 post-design intervention.

Methods

- IRB-approved
- Descriptive cross-sectional study
- Survey administered to 30 mothers after giving birth and 30 fathers who chose to be present during labor to assess:
 - Maternal perception of privacy for mothers with and without birth complications
 - Paternal experience, including fathers' reason for choosing to be present, fathers' experience during labor and delivery, presence of other family, and effects of socioeconomic status
 - Surveys administered until goal participation recruitment or saturation reached
- Inductive thematic analysis will be utilized to determine themes and inform follow-up in-person interviews (30 mothers, 30 fathers)
- Effect of all variables on depression and maternal bonding will be assessed using the maternal-infant bonding scale and maternal depression scale
- GPS-enabled pedometer (Fitbit) use for staff path tracking
 - Nurses/midwives, registrars/interns

Methods: Data Management & Analysis

- Data gathered and stored with Qualtrics
- Validated screeners (Maternal Infant Bonding Scale and Edinburgh Postpartum Depression Scale)
- t-Test or Chi-Square test

Preliminary Results

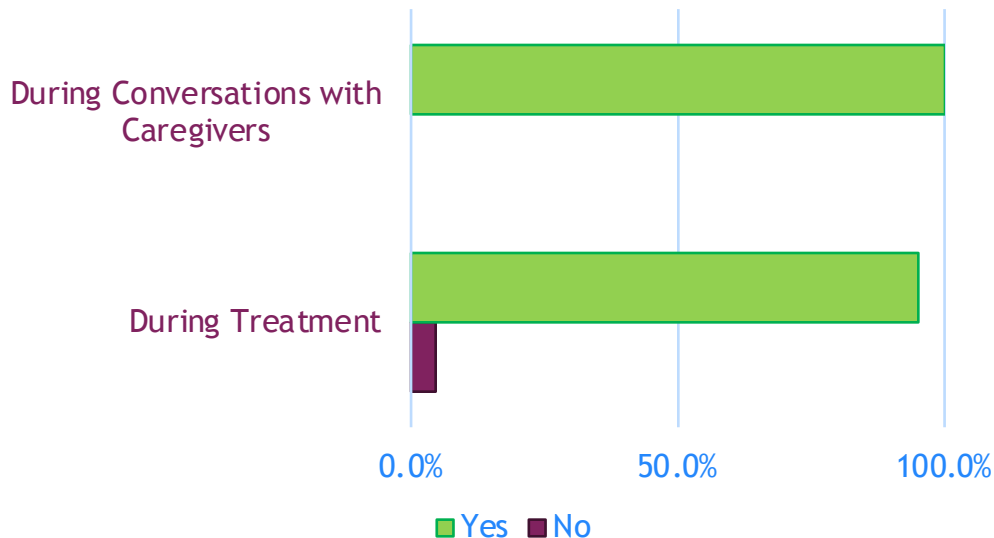
- MOB: 22 participants Goal: 30
- FOB: 16 participants Goal: 30
- Nurse/Midwife: 2 participants Goal: 4
- Clinician: 3 participants Goal: 4

Average Mother

Age: 27y \pm 5
Labor duration: 18h \pm 12
Complications: 4.8%

Preliminary Results: Maternal Privacy

- Did you feel privacy respected during conversations with caregivers? (100% yes)
- Did you feel privacy respected during treatment? (95.2% yes)



“I had no issues with privacy ”

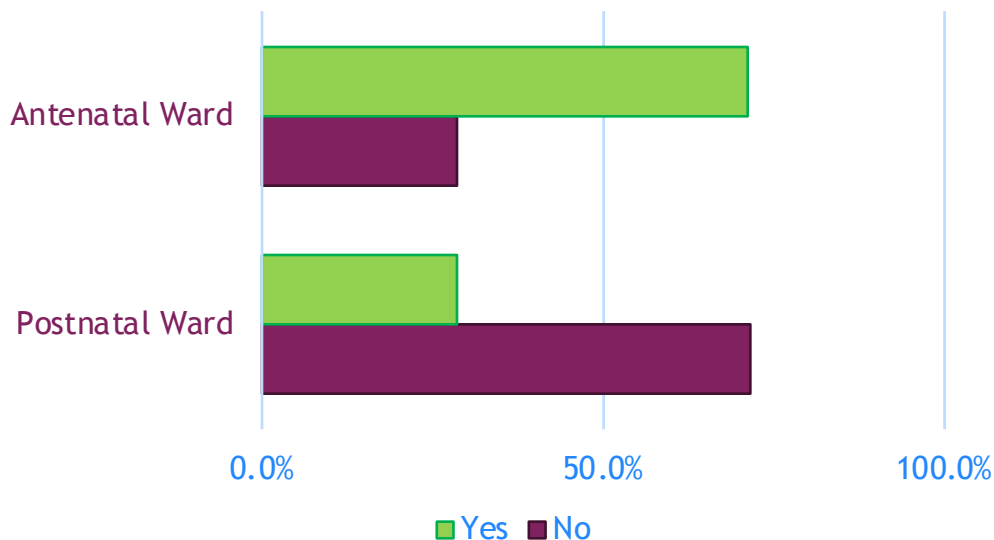
“Sometimes they were leaving the curtain open and everyone could see me on the bed”

“Psychologically I was affected because everyone could see me and the nurse was also shouting at me”

Preliminary Results & Conclusions:

Privacy + Architecture

- Did you feel the architectural space allowed for privacy in antenatal ward? (71.4% yes)
- Did you feel the architectural space allowed for privacy in postnatal ward? (28.6% yes)



Dr. Luis Gadama:

40 patients in antenatal ward
v.
100 patients in postnatal ward

Breastfeeding in postnatal ward
(added questions regarding this)

Preliminary Results & Conclusions:

Privacy + FOB/Guardian

- Did you feel your privacy would be maintained while having male/FOB?
- Did you feel your privacy would be maintained while having guardian?

Next Steps

Await final survey data (8 MOB, 14 FOB), particularly the new breastfeeding data

Complete descriptive statistics for FOB surveys

Run statistical analyses to determine significance

Guardian

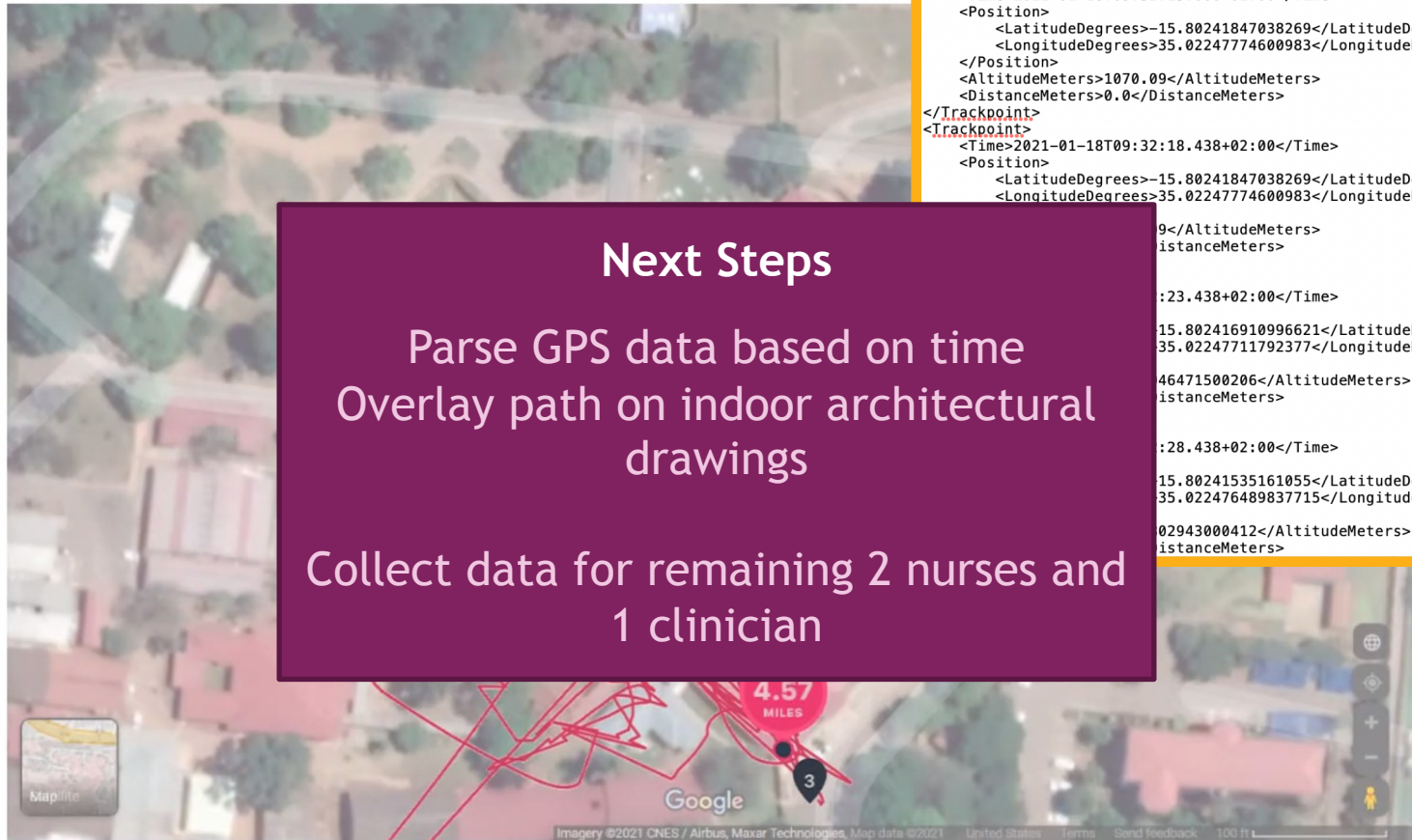
0.0%

50.0%

100.0%

■ Yes ■ No ■ Not Sure

Preliminary Results: Staff Workflow



Next Steps

Parse GPS data based on time
Overlay path on indoor architectural
drawings

Collect data for remaining 2 nurses and
1 clinician

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Timeline

- **December-January**
 - Research assistant to collect patient, partner, and guardian survey data (simultaneous data analysis here at Jefferson to determine when saturation has been reached)
 - Research assistant to conduct Fitbit staff path mapping study with design solution opportunities in mind
 - Begin writing up study results and developing design solutions in identified areas for improvement
- **April**
 - Develop sustainable labor and delivery suite architectural design informed by study results

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Questions?



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